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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

FUJITA, KATRINA R

ART UNIT

PAPER NUMBER

2624

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/775,242	Applicant(s) KOYAMA ET AL.	
	Examiner KATRINA FUJITA	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 19, 2008 has been entered.

Response to Amendment

2. This Office Action is responsive to Applicant's remarks received on June 19, 2008. Claims 1-8 remain pending.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2624

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Tachibana et al. (US 2001/0053246), Weast (US 6,931,151) and Inoue et al. (US 6,128,407).

Regarding **claim 1**, Tachibana et al. discloses a document processing apparatus (figure 1, numeral 30; "application for displaying or editing a document" at paragraph 0029, line 4) comprising:

a determination unit (figure 1, numeral 33) that determines at least some of a plurality of colors of an area contained in input document data as a determined color group (figure 4, numeral S420; "pre-processing for specifying the target color to be converted with predetermined range" at paragraph 0044, line 9);

a retrieval unit (figure 1, numeral 33) that determines a set of the colors contained in the determined color group as a confusion color set based on confusion color information defined in association with color blindness of a human being in a predetermined color component space ("a color that a user whose color vision is impaired can not easily discriminate is specified in advance as a target color to be converted" at paragraph 0049, line 1); and

a processor (figure 2, numeral 203) that performs a predetermined process for portions of the colors contained in the confusion color set determined by the retrieval

Art Unit: 2624

unit in the input document data ("pre-processing required for the succeeding color conversion is performed" at paragraph 0049, line 4).

Tachibana et al. does not disclose that the retrieval unit determines an association between the colors in the determined color group based on one or more criteria and determines the confusion color set based on the association.

Weast teaches a system and method in the same field of endeavor of modifying color content for color blind individuals ("color blind systems and more particularly to filtering graphics to enable color-blind viewing" at col. 1, line 9) comprising:

a retrieval unit (figure 1, numeral 14) that determines an association between the colors ("analysis of shade properties could indicate a grouping of two or more distinct colors arranged such that a color-blind person would be unable to detect the presence of two separate shades" at col. 6, line 48) in the determined color group ("computer graphics content" at col. 2, line 48) based on one or more criteria ("shade properties" at col. 6, line 48; "grouping" at col. 6, line 48), determines a set of the colors contained in the determined color group as a confusion color set ("problematic graphics content" at col. 2, line 50) based on the association and confusion color information defined in connection with color blindness of a human being in a predetermined color component space ("predefined color profiles that identify which graphics may be problematic for color challenged users" at col. 2, line 48).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the color-blind filter of Weast to determine the confusion set of

Art Unit: 2624

Tachibana et al. to modify only "selected graphics data into color corrected data suitable for a visually challenged viewer" (Weast at col. 5, line 49).

The Tachibana et al. and Weast combination does not disclose that the determination unit determines whether the area has a predetermined reference area or larger based on a histogram of the colors.

Inoue et al. teaches an apparatus in the same field of endeavor of color image processing ("image processing system for executing color conversion for input color image data so that the color image data falls within the color reproduction range of an output device" at col. 1, line 7) comprising:

a determination unit (figure 30, numeral 9) that determines at least some of a plurality of colors of an area contained in input data as a determined color group (figure 31, grouping at bottom of the figure), wherein the determination unit determines whether the area has a predetermined reference area or larger based on a histogram of the colors ("division position areas adjacent to each other up and down, left and right, and slantingly are collected as a position group based on the histograms for the division position areas in each division color area" at col. 42, line 63; "division position areas are A and B" at col. 43, line 3; " $A > th2$ and $B > th2$ " at col. 43, line 8; "threshold values $th1$ - $th3$ may be preset" at col. 27, line 48).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the color group processing of Inoue et al. to identify the determined color group of the Tachibana et al. and Weast combination to incorporate

Art Unit: 2624

the local spatial color contrast of the image data into deciding on further processing, thereby avoiding the problem of creating further color issues for the user (see Inoue at col. 41, lines 54-67 and col. 2, lines 1-21).

Regarding **claim 8**, the Tachibana et al., Weast, and Inoue et al. combination discloses a method as performed by the apparatus as described in the claim 1 rejection above.

Regarding **claim 6**, the Tachibana et al., Weast and Inoue et al. combination discloses that the predetermined color component space contains a lightness component of each of the colors in the determined color group ("maximum luminance is set for a pertinent color (by setting the color elements to 0 or 255)" Tachibana et al. at paragraph 0051, line 2).

The Tachibana et al., Weast and Inoue et al. combination does not disclose that the retrieval unit removes an attention color from the confusion color set when the attention color contained in one of the confusion color set and other one or more colors contained in the confusion set differ in lightness on color vision characteristics of a human being.

Weast teaches a system wherein the retrieval unit removes an attention color from the confusion color set ("content is not problematic for color-blind users (step 508), no modifications are made" at col. 9, line 48) when the attention color contained in the confusion color set and other one or more colors contained in the confusion color set differ in lightness on color vision characteristics of a human being ("analysis of shade properties could indicate a grouping of two or more distinct colors arranged such that a

Art Unit: 2624

color-blind person would be unable to detect the presence of two separate shades" at col. 6, line 47).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the color-blind filter of Weast to determine the confusion set of the Tachibana et al., Weast and Inoue et al. combination to modify only "selected graphics data into color corrected data suitable for a visually challenged viewer" (Weast at col. 5, line 49).

Regarding **claim 7**, the Tachibana et al., Weast, and Inoue et al. combination discloses an apparatus wherein

the predetermined color component space contains a lightness component of each of the colors contained in the determined color group ("maximum luminance is set for a pertinent color (by setting the color elements to 0 or 255)" Tachibana et al. at paragraph 0051, line 2); and

the retrieval unit does not determine whether or not colors of the confusion color set differ in lightness on the color vision characteristics of a human being are confused with each other (as the shade properties of the images are evaluated with respect to predefined color profiles, content that different in luminance would be determined as unproblematic for a dichromat and therefore be passed over).

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Tachibana et al., Weast and Inoue et al.. as applied to claim 1 above, and further in view of Meyer et al. ("Color-Defective Vision...", IEEE Article).

The Tachibana et al., Weast, and Inoue et al. combination discloses that the retrieval unit determines some of the plurality of colors as the confusion color set when some of the plurality of colors in the determined color group are contained in a predetermined range (figure 8; "if all the extracted color elements (R, G, B) lie within a range extending from the maximum to the minimum value of the predetermined color that was set, the pertinent color is deemed to be such predetermined color" Tachibana et al. at paragraph 0048, line 17) defined in the proximity of one attention confusion color in a confusion color group defined so as to contain confusion colors in color blindness in the color component space ("color that a user whose color vision is impaired can not easily discriminate is specified in advance as a target color to be converted" Tachibana et al. at paragraph 0049, line 2).

The Tachibana et al., Weast, and Inoue et al. combination does not disclose that the attention confusion color is a confusion color locus in a confusion color locus group.

Meyer et al. teaches a system in the same field of endeavor of modifying color content for color blind individuals ("introduces the above-mentioned fundamental color space and shows how it can be used to assist in the design of computer graphics displays for color-deficient users" at page 1, right column, line 8) wherein the attention confusion color is a confusion color locus in a confusion color locus group (figures 3, 4, 5).

It would have been obvious at the time the invention was made to one of ordinary skill in the art for the color profiles of the Tachibana et al., Weast and Inoue et al. combination to be defined by the confusion loci taught by Meyer et al. as described

Art Unit: 2624

above, to eliminate unnecessary processing by further limiting the criteria of what constitutes a confusion color.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Tachibana et al., Weast et al. and Inoue et al. as applied to claim 1 above, and further in view of Takamura et al. ("Constructing a Uniform Color Space...", IEEE Article).

The Tachibana et al., Weast and Inoue et al. combination discloses that the retrieval unit determines a confusion color set of the colors contained in the determined color group based on confusion color information in association with color blindness of a human being as described in the 103 rejection above.

The Tachibana et al., Weast and Inoue et al. combination does not disclose determining which blocks previously defined in the predetermined color component space for each of the colors in the determined color group belongs to and determining a confusion color set based on block-to-block confusion color information associating blocks confused with each other in color blindness in association with color blindness of a human being and information of a block to which each of the colors contained in the determined color group belongs.

Takamura et al. teaches a method in the same field of endeavor of transforming color spaces ("constructing a uniform color space" at section 1, paragraph 5, line 2) that determines which of blocks previously defined in the predetermined color component space (figure 4, triangular segments) for each of the colors contained in the determined

Art Unit: 2624

color group belongs to (figure 4, each MacAdam ellipse contains triangular segments) and determines a confusion color set (“visually imperceptible color reproduction” at section 1, paragraph 3, line 2) based on block-to-block confusion color information associating blocks confused with each other in color blindness in association with color blindness of a human being (figure 4, defined by the MacAdam ellipses) and information of the block to which each of the colors contained in the determined color group belongs (each block has a defined space in the color space).

It would have been obvious at the time the invention was made to one of ordinary skill in the art for the color profiles of the Tachibana et al., Weast and Inoue et al. combination to determine the confusion color set using the color space construction taught by Takamura as described above, to “reduce the amount of coding bits needed to make a virtually lossless decoded image” (Takamura, at section 5, paragraph 1, line 6).

7. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Tachibana et al., Weast and Inoue et al. as applied to claim 1 above, and further in view of Meyer et al. and Oleari (“Uniform-Scale Chromaticity...”, Color Research & Application).

The Tachibana et al., Weast and Inoue et al. combination discloses that the retrieval unit determines the plurality of colors as a confusion color set when one attention confusion color in a confusion color group defined so as to contain confusion colors in color blindness in the color component space passes through the inside of the

Art Unit: 2624

defined nearby area (figure 8; "if all the extracted color elements (R, G, B) lie within a range extending from the maximum to the minimum value of the predetermined color that was set, the pertinent color is deemed to be such predetermined color" Tachibana et al. at paragraph 0048, line 17).

The Tachibana et al., Weast and Inoue et al. combination does not disclose that the attention confusion color is a confusion color locus in a confusion color locus group.

Meyer et al. teaches a system in the same field of endeavor of modifying color content for color blind individuals ("introduces the above-mentioned fundamental color space and shows how it can be used to assist in the design of computer graphics displays for color-deficient users" at page 1, right column, line 8) wherein the attention confusion color is a confusion color locus in a confusion color locus group (figures 3, 4, 5).

It would have been obvious at the time the invention was made to one of ordinary skill in the art for the color profiles of the Tachibana et al., Weast and Inoue et al. combination to be defined by the confusion loci taught by Meyer et al. as described above, to eliminate unnecessary processing by further limiting the criteria of what constitutes a confusion color.

The Tachibana et al., Weast, Inoue et al. and Meyer et al. combination does not define a nearby confusion area provided based on the color vision characteristics of a human being or characteristics of an output medium in the predetermined color component space for each of the colors in the determined color group and determine a

Art Unit: 2624

confusion color set when one attention confusion color locus passes through an inside of the defined nearby confusion area.

Oleari defines a nearby confusion area provided based on the color vision characteristics of a human being or the characteristics of an output medium in the predetermined color component space for each of the colors contained in the determined color group (“these ellipses represent one standard deviation in color-matching at constant luminance” at paragraph 2, line 2) and determines a color confusion set when one attention confusion color locus passes through the inside of the defined nearby confusion area (figure 1 and 3).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the color profiles of the Tachibana et al., Weast, Inoue et al. and Meyer combination using the MacAdam ellipses taught by Oleari as described above, to eliminate unnecessary processing by further limiting the criteria of what constitutes a confusion color.

Response to Arguments

8. Applicant's arguments with respect to claims 1-8 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KATRINA FUJITA whose telephone number is (571)270-1574. The examiner can normally be reached on M-Th 8-5:30pm, F 8-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on (571) 272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Katrina Fujita/
Examiner, Art Unit 2624

/Vikkram Bali/
Supervisory Patent Examiner, Art Unit 2624